

PATENT ABSTRACTS OF JAPAN

(11) Publication number : 07-056152

(43) Date of publication of application : 03.03.1995

(51) Int. Cl. G02F 1/1333
G02F 1/1333
G02F 1/1335
G02F 1/136

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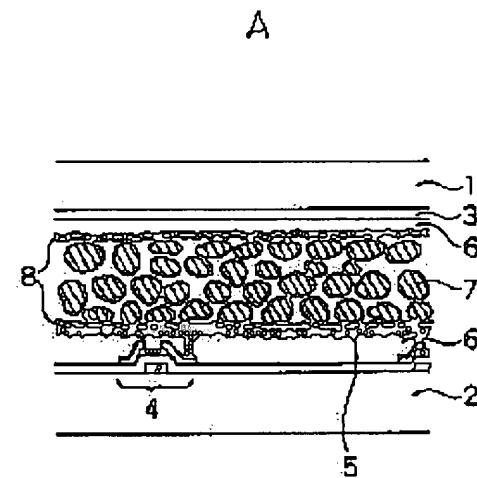
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(54) SCATTERING TYPE DISPLAY ELEMENT AND ITS MANUFACTURE

(57) Abstract:

PURPOSE: To make the element bright and high in contrast by making the refractive index of a substrate border surface which comes into contact with a medium less than or nearly equal to the refractive index when the scattering power of the medium is small.

CONSTITUTION: The element is equipped with a substrate 1, the light scatterable medium which is inserted and held with the substrate, and a light absorbing layer 5 which is provided behind the medium and substrate border surface when viewed from an observer side; and the light scattering ability and refractive index of the medium are varied at the same time by voltage application and the refractive index of the substrate border surface which comes into contact with the medium is less than or nearly equal to the refractive index when the scattering ability of the medium is small. Then incident light is transmitted through a liquid crystal layer in a transparent state at the time of the voltage application and at this time, the substrate border surface and liquid crystal are equal in refractive index, so the incident light is transmitted even through the border surface and reaches the light absorbing layer 5 behind it, thereby making a black display. When no electric field is applied, on the other hand, the incident light is scattered by the liquid crystal layer; and part of the light is scattered backward, i.e., reflected and the rest is scattered forward and made incident on the substrate border surface at various angles. The refractive index in the absence of the electric field becomes larger than that of the substrate border surface, so the reflection increases and the light which is reflected by the border surface returns to the liquid crystal layer.



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[Date of request for examination]
[Date of sending the examiner's decision of rejection]
[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]
[Date of final disposal for application]
[Patent number]
[Date of registration]
[Number of appeal against examiner's decision of rejection]
[Date of requesting appeal against examiner's decision of rejection]
[Date of extinction of right]

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